

REMARKS

Claims 1, 5-7, and 11-19 stand rejected under 35 U.S.C. 102(b) as being anticipated by Genheimer (U.S. Patent No. 5,801,899). In response, Applicants traverse the rejection because the cited reference does not teach or suggest, among other things, a disk writing unit that includes a spoiler.

The Examiner cites Genheimer. Genheimer has a snubber 100B or snubber arms 102A, as shown in FIG. 3, which is considered by the Examiner as being equivalent to a spoiler or a second member, as recited in independent claims 1, 11 and 17 of the present invention. However, Webster's Third New International Dictionary defines "snubber" as "d: SHOCK ABSORBER." A copy of the corresponding Webster page defining the snubber is attached for the Examiner's convenience. Genheimer supports this definition of a snubber by stating: "the snubber 100 protects the disk drive 10 from damage as a result of mechanical shocks provided to the disk drive 10." (Col. 4, lns. 30-32). That is, Genheimer discloses the snubber 100 and its arms as functioning as a shock absorber, and not functioning as a spoiler as in the present invention.

In contrast, claims 1, 11 and 17 of the present invention call for a spoiler having a given height in a direction perpendicular to the surface of the disk and extending above the surface of the disk, or an airflow-regulating member that regulates airflow due to disk rotation. Advantageously, the airflow-regulating member or spoiler decelerates air flow flowing over the surface of the disk, and regulates the air flow in an extending direction of

the spoiler or airflow-regulating member. This structure of the spoiler/airflow-regulating member reduces the influence of any wind disturbance on the positioning system. (See Applicants' specification, page 2, lns. 17-24).

The snubber and snubber arms recited in Genheimer serve a completely different purpose than the spoiler/airflow-regulating member or second member of the present invention, as recited in claims 1, 11 and 17. Genheimer teaches shock absorption, and not airflow regulation. That is, there is no teaching or suggestion in Genheimer that the snubber or its arms function to regulate airflow as the spoiler recited in claim 1, receive and regulate airflow regulated by a first member to prevent airflow from flowing toward an actuator, as recited in claim 11.

With respect to independent claim 17, there is no teaching or suggestion in Genheimer that an airflow-regulating member is "provided in proximity to a boundary between a first area wherein a wall of a housing of the disk run side by side with the peripheral edge of the disk in a second area where a distance between the inner wall and the peripheral edge becomes longer than in the first area." Thus, Genheimer fails to disclose or suggest "a spoiler," "a second member," and "an airflow-regulating member" as recited in the independent claims of the present invention. Therefore, withdrawal of the §102 rejection of claims 1, 5-7 and 11-19 is respectfully requested.

Claim 4 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Genheimer. The Examiner asserts that it would have been obvious to one having ordinary

skill in the art at the time of the invention was made to have provided a spacing of 5 mm or less between one end of the spoiler and a shroud. However, as stated above the snubber and arm of Genheimer do not operate as a spoiler, but rather as a shock absorber. Furthermore, Genheimer does not address the problem, let alone suggest a solution, for reducing an influence of wind disturbance caused by airflow generated by mechanical oscillation of the disk. That is, Genheimer does not teach or suggest reducing the influence of wind disturbance by using a spoiler, as in the present invention.

In contrast, the present invention reduces the influence of wind disturbance and advantageously teaches a distance of 5mm or less between an end of the shroud in a rotational direction of the disk and the surface of the spoiler. More specifically, Applicants disclose the advantage of the 5 mm or less distance as follows:

“Next, a description will be given of the results of the verification of the airflow regulation effect of each of the magnetic disk unit 1 of FIG. 1 and a magnetic disk unit 3 of FIG. 4. The verifications were made to clarify a relation between the airflow regulation effect and the positions of the shroud 70 and the spoiler 80. In FIG. 4, the same elements as those of FIG. 1 are referred to by the same numerals, and a description thereof will be omitted.

In the magnetic disk unit 3 of FIG. 4, both shroud 70 and spoiler 80 are provided, but the downstream end 71 of the shroud 70 and the air-receiving surface 81 of the spoiler 80 are separated by a distance of over 5

mm, which distance is longer than that in the magnetic disk unit 1. In the magnetic disk unit 3, airflow is regulated by the shroud 70, but is dispersed in various directions as indicated by arrows in FIG. 4 after passing by the downstream end 71 of the shroud 70. Since the airflow running into the spoiler 80 includes a turbulent component, the spoiler 80 is prevented from sufficiently decelerating and regulating the airflow. As a result, the high-speed airflow containing the turbulent component runs into and vibrates the actuator 50, thus causing a decrease in the head-positioning accuracy. From these verification results, it is concluded that the distance between the downstream end 71 of the shroud 70 and the air-receiving surface 81 of the spoiler 80 is preferably less than or equal to 5 mm". (Pg. 12, Ln. 26 to Pg. 13, Ln. 19).

Accordingly, the numerical limitation of 5mm or less between the end of the shroud and the rotational direction of the disk and the surface of the spoiler is a significant feature of the present invention. Applicants believe that it would not have been obvious based on the Genheimer reference to ascertain the 5mm or less distance because Genheimer does not disclose or teach reducing the influence of wind disturbance. Therefore, the criticality of the dimension of this feature is not relevant to Genheimer, which is instead concerned with shock absorption. For this reason, withdrawal of the §103 rejection of claim 4 is respectfully requested.

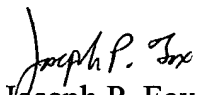
New claims 20-25 are added and recite further features of the present invention. More specifically, new claims 20-21 are generally claims 1 and 11 and include the feature that "the spoiler includes at least one tooth extending from the upright part toward the center of the magnetic disk and having a length between 1mm and 25mm." New claims 22 and 24 and their respective dependent claims 23 and 25 recite materials for forming the spoiler, as disclosed on page 10, lines 30-33 and page 15, lines 24-27 of Applicants' specification. Preferably, the material of the spoiler is harder than a material forming a recording medium or disk so that the spoiler vibrates less than the recording medium due to the air flow. In particular, the material of the spoiler is generally such that the recording medium is damaged whenever the recording medium comes into contact with the spoiler. Therefore, Genheimer would not be applicable since these materials would not assist with shock absorption. For these reasons, allowance of new claims 20-25 is earnestly solicited.

For all of the foregoing reasons, Applicants submit that this Application is in condition for allowance, which is respectfully requested. The Examiner is invited to contact the undersigned attorney if an interview would expedite prosecution.

Respectfully submitted,

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